

Rejections of Claims Under §103

All of the pending claims were rejected under under 35 USC § 103. The MPEP states the following with regard to rejections under 35 USC § 103:

“To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.” MPEP 2143.

A Federal Circuit opinion states that the suggestion or motivation to combine references and the reasonable expectation of success must both be found in the prior art. MPEP 2143 citing *In re Vaeck*, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991).

Multiple Federal Circuit decisions emphasize the need for the PTO to furnish evidence in support of claim rejections. For example, the Federal Circuit addressed citation of “basic knowledge and common sense” in rejections in *In re Zurko*, 59 USPQ2d 1693 (Fed. Cir. 2001):

“With respect to core factual findings in a determination of patentability, however, the Board [Board of Patent Appeals and Interferences] cannot simply reach conclusions based on its own understanding or experience – or on its assessment of what would be basic knowledge or common sense. Rather, the Board must point to some concrete evidence in the record in support of these findings.” *In re Zurko*, 59 USPQ2d at 1697.

The Federal Circuit has particularly emphasized the need for the PTO to furnish evidence in support of claim rejections under 35 USC § 103 in *In re Lee*:

“When patentability turns on the question of obviousness, the search for and analysis of the prior art includes evidence relevant to the finding of whether there is a teaching, motivation, or suggestion to select and combine the references relied on as evidence of obviousness.....The factual inquiry whether to combine references must be thorough and searching....It must be based on objective evidence of record.” *In re Lee*, 61 USPQ2d 1430, 1433 (Fed. Cir. 2002).

That an invention is within the ordinary skill of the art alone does not make it obvious:

“A statement that modifications of the prior art to meet the claimed invention would have been “well within the ordinary skill of the art at the time the claimed invention was made”” because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references.” MPEP 2143.01 citing *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993).

The Board in *Ex parte Levengood* stated:

“an examiner cannot establish obviousness by locating references which describe various aspects of a patent applicant’s invention without also providing evidence of the motivating force which would impel one skilled in the art to do what the patent applicant has done.” *Ex parte Levengood*, 28 USPQ2d at 1302.

The Office Action has not provided sufficient evidence to support the rejections of claims 1-18 and 27-46 under 35 USC § 103, and the applicant respectfully requests that evidence be provided or the rejections be withdrawn.

Claims 1-6 and 43-46 were rejected under 35 USC §103(a) as being unpatentable over Seyyedy et al. (U.S. Patent No. 5,811,869, Seyyedy). The applicant respectfully traverses.

The applicant respectfully submits that the Office Action has not cited evidence in the rejection of claims 1-6 and 43-46 that supports a motivation for modifying Seyyedy as is required by *In re Vaeck*, *In re Lee*, *Ex parte Levengood*, and *In re Zurko* quoted above.

Seyyedy relates to a laser antifuse having a dielectric 20 between an n-well 12 and a polysilicon gate 22. Seyyedy, column 3, lines 1-12. The Office Action indicated on page 2 that “[i]t would have been obvious to select either first or a second conductivity type for the first conductive terminal depending on the desired work function of the capacitor plate. Additionally, *since Seyyedy et al. is silent with respect to the conductivity type of the first conductive terminal*, one having ordinary skill in the art would have been required to select a conductivity type of either N or P, since they are the only two available and it has not been shown to be a critical feature of the invention.” In the Response to Arguments section, the Office Action makes a similar statement and states that “it is not known why one having ordinary skill would choose not to select a dopant type.” Office Action, page 19.

First, the Office Action has not shown that one skilled “would have been required to select a conductivity type of either N or P.” This is not the case. A third type of semiconductor material is called intrinsic semiconductor material that is not doped. In the “Response to Arguments” section the Office Action introduced Neamen, and Neamen gives a definition of intrinsic and extrinsic semiconductors on page 98. Furthermore, since Seyyedy is silent with respect to the conductivity type, Seyyedy does not see it necessary that a conductivity type must be selected for the polysilicon gate 22. The Office Action has not presented evidence that the polysilicon gate 22 of Seyyedy must be doped either N or P type, and cannot be intrinsic.

Second, even if doping a polysilicon gate were within the ordinary skill of the art, obviousness cannot be established without “evidence of the motivating force which would impel one skilled in the art to do what the patent applicant has done.” *Ex parte Levengood*, 28 USPQ2d at 1302. The Office Action did not cite evidence in Seyyedy or any other prior art in the rejection of claims 1-6 and 43-46 that supports a motivation for modifying Seyyedy as is required by *In re Vaeck*, *In re Lee*, *Ex parte Levengood*, and *In re Zurko* quoted above.

With regard to the criticality of any claim element, the burden is on the Office Action to establish a *prima facie* case of obviousness, and the Office Action has not established a *prima facie* case of obviousness without the above-mentioned evidence.

In the "Response to Arguments" section the Office Action discussed Neamen and using a dopant to select a work function. The applicant notes that Neamen has not been applied in the rejection of any claims, and is not applied to provide evidence for modifying Seyyedy. The Office Action has not established a motivation to dope the polysilicon gate 22 in the laser antifuse of Seyyedy to change its work function. Seyyedy describes that the laser antifuse is an open circuit (column 1, lines 37-38) that is programmed by directing a laser beam to rupture the dielectric to short the gate 22 and the n-well 12 (column 3, lines 29-31). The Office Action has not provided evidence establishing why the work function parameter of the gate 22 is of concern in the laser antifuse of Seyyedy in view of how Seyyedy describes its use. Absent further evidence, the Office Action has not established a *prima facie* case of obviousness.

The applicant respectfully submits that a *prima facie* case of obviousness of claims 1-6 and 43-46 has not been established in the Office Action, and that claims 1-6 and 43-46 are in condition for allowance.

Claims 10-18 and 27-42 were rejected under 35 USC §103(a) as being unpatentable over Seyyedy in view of Marr et al. (U.S. Patent No. 5,742,555, Marr). The applicant respectfully traverses.

The applicant respectfully submits that the Office Action has not cited evidence in the rejection of claims 10-18 and 27-42 that supports a motivation for modifying Seyyedy or for combining Seyyedy with Marr as is required by *In re Vaeck*, *In re Lee*, *Ex parte Levengood*, and *In re Zurko* quoted above.

The Office Action indicated on page 6 that "Seyyedy et al. does not teach a programming logic circuit and an external pin" and that "[i]t would have been obvious to employ the antifuse taught by Seyyedy in such a configuration since it is a commonly known circuit layout and it is desirable for the antifuse to have functionality." In the Response to Arguments section, the Office Action states that the motivation to combine Seyyedy with Marr is "to give the device functionality." Office Action, page 19. The Office Action made a similar statement of

motivation on page 8. The Office Action did not cite language in Seyyed, Marr, or any other prior art that supports this motivation for combining Seyyed and Marr as is required by *In re Vaeck*, *In re Lee*, and *In re Zurko* quoted above. There is no evidence in the Office Action that the device of Seyyed lacks functionality without the circuit of Marr. Furthermore, even if using the antifuse of Seyyed in the circuit of Marr were within the ordinary skill of the art, obviousness cannot be established without “evidence of the motivating force which would impel one skilled in the art to do what the patent applicant has done.” *Ex parte Levengood*, 28 USPQ2d at 1302.

The Office Action indicated on page 7 that “Neither Seyyed et al. nor Marr et al. teach an antifuse wherein the well is p-type and the conductive terminal is n-type. It would have been obvious to select an n-type or p-type terminal depending on the desired work function of the capacitor plate. Additionally, one having ordinary skill would have been required to select one of an n-type or a p-type since they are the only two options.” Similar statements of motivation were made on pages 6, 8, 10, and 11 of the Office Action. As discussed above with respect to the rejection of claims 1-6 and 43-46, the Office Action has not presented evidence that the polysilicon gate 22 of Seyyed must be doped either N or P type, and cannot be intrinsic. Even if doping a polysilicon gate were within the ordinary skill of the art, obviousness cannot be established without “evidence of the motivating force which would impel one skilled in the art to do what the patent applicant has done.” *Ex parte Levengood*, 28 USPQ2d at 1302. The Office Action also has not provided evidence to establish a motivation to dope the polysilicon gate 22 in the laser antifuse of Seyyed to change its work function.

The Office Action indicated on page 10 that “The combination of a negative potential to the p+ region and a supply voltage being coupled to the polysilicon layer is one of many combinations that would have provided a breakdown potential across the oxide layer. It would have been obvious to select such a combination since it is a known method of forming a large potential difference.” A similar statement of motivation was made on page 13 of the Office Action. Even if forming this potential difference were within the ordinary skill of the art, obviousness cannot be established without “evidence of the motivating force which would impel one skilled in the art to do what the patent applicant has done.” *Ex parte Levengood*, 28 USPQ2d at 1302.

The applicant respectfully submits that a *prima facie* case of obviousness of claims 10-18 and 27-42 has not been established in the Office Action, and that claims 10-18 and 27-42 are in condition for allowance.

Claims 7-9 were rejected under 35 USC § 103(a) as being unpatentable over Seyyedy in view of Marr. The applicant respectfully traverses.

Claims 7-9 are dependent on claim 5, and recite further limitations with respect to claim 5. For reasons analogous to those stated above, and the limitations in the claims, the applicant respectfully submits that a *prima facie* case of obviousness of claims 7-9 has not been established in the Office Action, and that claims 7-9 are in condition for allowance.

CONCLUSION

The applicant respectfully submits that all of the pending claims are in condition for allowance, and such action is earnestly solicited. The Examiner is requested to telephone the below-signed attorney at 612-373-6973 to discuss any questions which may remain with respect to the present application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,


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